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- (71) Applicant (for all designated States except US): GEORGIA TECH RESEARCH CORPORATION [US/US]; 505 Tenth Street, NW, Atlanta, GA 30332-0415 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): KOHL, Paul [US/US]; 130 Cameron Glen Drive, Atlanta, GA 30328 (US). MOORE, Christopher, W. [US/US]; 3235 1 Post Woods Drive, Atlanta, GA 30339 (US). LI, Jun [CN/US]; 2550 Akers Mill Road, Apt. MS, Atlanta, GA 30339 (US). TULLIS, Justin [US/US]; 6088 Millstone Run, Stone Mountain, GA 30087 (US).
- (74) Agent: LINDER, Christopher, B.; Thomas, Kayden, Horstemeyer & Risley, LLP, 100 Galleria Parkway, NW, Suite 1750, Atlanta, GA 30339-5948 (US).
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(54) Title: MICROSTRUCTURES AND METHODS OF FABRICATION THEREOF

(57) Abstract: Fuel cells, fuel cell membranes, micro-fuel cells, and methods of fabricating each, are disclosed. One exemplary fuel cell, among others, includes a membrane including a material such as organic conducting materials and inorganic conducting materials, and combinations thereof. The membrane has a thickness of about 0.01 to 10 µm, and has an area resistivity of about 0.1 to 1000 ohms cm<sup>2</sup>.